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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,145	01/23/2004	Jurgen Morton-Finger	22780	6066

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EXAMINER

WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT PAPER NUMBER

1732

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/764,145

Applicant(s)

MORTON-FINGER, JURGEN

Examiner

Jeff Wollschlager

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12304;50404.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 10 is objected to because of the following informalities: It appears the word "that" is missing from the phrase: "...measuring melt pressure up flights of the extruder screw [that] are filled only...".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (U.S. Patent 6,409,949; issued June 25, 2002; Priority date of March 29, 1999) in view of Davies (U.S. Patent 5,643,515; issued July 1, 1997).

Claim 1 is directed to a method of manufacturing a polyethylene terephthalate (PET) packaging web comprising a) extruding PET in a twin-screw extruder, b) degassing the melt while in the extruder, c) outputting a strip of the PET melt from a spinning head located downstream of the extruder, and d) cooling and stretching the PET strip to form a packaging web.

Tanaka et al. teach a method of extruding PET in a twin-extruder (col. 4, lines 32-35) and degassing the melt in the extruder (col. 4, lines 42-46; col. 6, lines 15, 27-31).

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Tanaka et al. disclose spinning the melt coming out of the extruder (Table I; col. 6, lines 42-47), but do not fully disclose the details of the spinning process claimed in c) and d) above. However, Davies teaches a variant of the well-known spinning process wherein a strip of PET is spun from a spinning head located downstream from the extruder (col. 3, lines 5-9) and is stretched (col. 2, lines 15-27 and 32-42) and cooled in a water bath (col. 2, lines 27-32). Further, the strip exiting the extruder is inherently cooled as it is processed in the method taught by Davies.

Therefore it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the claimed invention to take the generic spinning method disclosed by Tanaka et al. and employ the detailed method exemplified by Davies because one of ordinary skill would have been aware that a well-known and common downstream processing step for PET exiting an extruder is producing drawn fibers and webs through a spinning process (e.g. melt-spinning), of which, the method of Davies is one example.

As to claim 2, Tanaka et al. teach that the raw material is reproduced PET flakes (col. 1, lines 61-62). Additionally, Davies teaches that PET recycled from bottles is the raw material (col. 1, lines 33-50).

As to claim 3, Tanaka et al. teach that the PET is supplied to the extruder with a metering screw (col. 4, lines 40-42).

As to claims 4 and 5, Tanaka et al. in view of Davies teach the method of claim 1 and claim 3 as discussed in the 103(a) rejections above, but do not explicitly teach the extent to which the extruder flights are filled. However, it is noted that the degree to which the extruder flights are filled has an impact on the electrical current loading on the

extruder motor, the ability to control temperature at the desired locations within the extruder and the pressure in the system. So one of ordinary skill in the art would have to take all of these variables into consideration when determining at what value to target the extruder flight loading. As such, this is a recognized control variable for extrusion and would have been readily optimized. (See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)).

As to claim 6, Tanaka et al. in view of Davies teach the method of claim 1 as discussed in the 103(a) rejection above, but do not explicitly disclose that the screws of the extruder are driven in the same direction. However, it is well known in the art that a twin-screw extruder with screws rotating in the same direction is well suited for biting into irregular ground materials. As such, it would have been obvious to one of ordinary skill to employ the twin-screw extruder taught by Tanaka et al. in such a manner that the screws were rotating in the same direction.

As to claim 7, Tanaka et al. teach connecting a vacuum pump to the extruder degassing vent (col. 4, lines 42-44).

As to claim 8, Tanaka et al. teach feeding a chain-lengthening substance to the interior of the extruder (col. 6, lines 20-22; col. 4, lines 45-51).

As to claim 10, Davies teaches the well-known method of passing the melt through a filter (col. 3, lines 5-8), but does not disclose measuring pressure up flight of the extruder and downstream of the filter, nor does Davies disclose controlling the extruder speed in accordance with the measured melt pressure. However, it is noted that monitoring the pressure during extrusion at different locations in the system and

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controlling the pressure with extruder speed are well-known variables utilized in the art for ensuring the equipment is not over pressurized, ensuring adequate temperature control in the extruder and for maintaining the desired electrical current loading on the extruder motor. So one of ordinary skill in the art would have to take all of these variables into consideration when determining where to monitor pressure in the extrusion system and at what speed to run the extruder. As such, this is a recognized control variable for extrusion and would have been readily optimized. (See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)).

As to claim 11, Tanaka et al. feed the melt to the downstream process with a gear pump (col. 4, lines 50-55).

As to claims 12 and 13, Davies cools the PET strip in a water bath (col. 2, lines 27-32; col. 4, lines 48-52).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (U.S. Patent 6,409,949; issued June 25, 2002; Priority date of March 29, 1999) in view of Davies (U.S. Patent 5,643,515; issued July 1, 1997) and further in view of VanBuskirk et al. (U.S. Patent 5,281,676; issued January 25, 1994)

Tanaka et al. in view of Davies teach the method of claim 8 as discussed in the 103(a) rejection above, but do not explicitly teach the chain-lengthening substance is a lactam or oxazole derivative. However, VanBuskirk et al., teach processing PET with lactam derivatives as the chain-lengthening substances (col. 3, lines 24-31; col. 4, lines 31-52). Therefore it would have been *prima facie* obvious at the time of the claimed invention to take the chain-lengthening substance employed in the method taught by

Tanaka et al. in view of Davies and modify it to be a lactam derivative as taught by VanBuskirk et al. because as taught by VanBuskirk et al. lactam derivatives are well-suited for use as chain lengthening substances in PET applications and do not result in any undesired toxic byproducts such as phenol comprising compounds (col. 4, lines 46-52). Therefore the invention as a whole is rendered obvious over the combined teachings of the prior art.

Conclusion

All claims are rejected.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent 2,465,319 exemplifies fiber-spinning PET.

U.S. Patent 4,255,295 exemplifies the use of a filter in recycling PET waste.

U.S. Patent 5,958,164 exemplifies the rotation of twin-extruder screws in the same direction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianne can be reached on 571-272-1196. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JW

Jeff Wollschlager
Examiner
Art Unit 1732

March 28, 2006



MICHAEL P. COLAIANNI
SUPERVISORY PATENT EXAMINER